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ingenuous minds, subjected to the influences which control the schools of learning in our day, will revolt from them with the keen dissatisfaction and bitter sense of injury and loss which so many have felt in the past, it does not seem possible to believe.

President Gilman delivered an address, on the occasion of this anniversary five years ago, upon a subject closely akin to that which has now been presented. His opening words I will quote: "To be concerned in the establishment and development of a university is one of the noblest and most important tasks ever imposed on a community or on a set of men. It is an undertaking which calls for the exercise of the utmost care, for combination, co-operation, liberality, inquiry, patience, reticence, exertion, and never-ceasing watchfulness. It involves perplexities, delays, risks. Mistakes cannot possibly be avoided; heavy responsibility is never absent." This statement, in no wise exaggerating the arduous and responsible nature of the task, may remind us how large a measure of honor and gratitude is due to those who have co-operated in the founding and upbuilding of this university, and especially to him, of whom in his absence we may speak more freely, to whose energy and wisdom and self-devotion the success of these years is, by common consent, pre-eminently to be ascribed.

NOTES AND NEWS.

WALLED up in the cellars of a brewery at Burton-on-Trent, there was discovered not long ago some beer which had been brewed in the year 1798. It resembled sherry more than it did a malt liquor, and was in good condition.

—The American Society of Mechanical Engineers have purchased a commodious building at 12 East 31st Street, this city, for permanent headquarters. Part of the building will be occupied by the Institute of Electrical Engineers, and the libraries of both societies will be merged into one.

—Late reports from the engineers at work on the Nicaragua Canal indicate that the preliminary harbor improvements at Greytown are going ahead successfully and rapidly. Senator Warner Miller has been elected president of the construction company, succeeding Mr. A. C. Cheney, who is now vice-president.

—A special train on the Philadelphia and Reading and the Central Railroad of New Jersey, on March 10, made the run between Philadelphia and New York, a distance of ninety miles, in eighty-five minutes. This is at the average rate of 63.53 miles per hour. At times the train is said to have exceeded eighty-five miles per hour.

—The American Tunnel Construction Company have contracted to construct a tunnel under the East River, from New York to Brooklyn, work to begin as soon as the consent of the local authorities shall have been secured. Meanwhile the tunnel under the Hudson, which has passed into the hands of English capitalists, is making slow progress.

—M. D. Bellet contributes to the *Compte Rendu*, 1889, No. 14, a note on some tables furnished by the director of the McGill Observatory, Montreal, to Gen. Greely. The observations extend over fifty years, from 1839 to 1888 inclusive, and form an exhaustive exposition of the climatic conditions of the country. During those years the variations of the seasons have been confined within very narrow limits. The last frosts have occurred at the beginning of May. The earliest spring was that of 1878, when the last frost was on April 2, and the latest was in 1856, in which year the thermometer fell to freezing-point on May 21. The frost, except in 1867 and 1874, always returned before November, the latest recorded being on the 5th of that month, and the earliest on Sept. 15 in the year 1859. In 1860 snow fell on Sept. 29, the only occasion when it fell during that month. Its latest appearance was in 1846, on Nov. 28. In 1839 snow ceased to fall in March, an event which did not happen again until 1889. The latest snow recorded fell on May 27, 1871. Snow fell during this month in only nineteen years out of the fifty. The mean temperature at Montreal during the seven

years 1851 to 1856 inclusive was 41.56° F., the maximum 100.1° F., and the minimum 36° F. During the fourteen years ending in 1888, the mean was 41.58° F., though the last year the mean was only 39.83° F. The mean rainfall for 1851 to 1857 was 43.004 inches, and for the last fourteen years only 27.2 inches; but the figures for the months of July and August, 1888, are the largest recorded. The annual fall of snow for the years 1851 to 1857 was 95.76 inches; for the fourteen years ending in 1889, 125.8 inches.

—The construction of railways was commenced in Japan about twenty years ago; and now 579 miles of line are in working order, of which 497 are in Hondo, and the remainder in Yezo. Some of these lines, according to *Compte Rendu*, 1889, No. 14, belong to the state, others to the Japanese Railway Company. The former run from Tokio to Yokohama; from Yokohama to Kodzu; from Kobe, through Osaka and Kioto, to Otsu on Lake Biwa; from Handa, through Nagoya and Naga-hama, to Tsuruga on the west coast of the island; from Takasaki to Yokokawa; and from Naoyetsu to Sikiyama. The company's lines run from Tokio to Sendai, and from Tokio to Takasaki and Mayebashi. In Yezo there are only two state lines, — the one from Otaru to Sapporo, and thence to the coal-mines of Horonai; the other connecting the sulphur-mines of Kushiro with the river of the same name. Besides the above-mentioned lines, there are in course of construction a line connecting Kodzu and Nagoya, with a branch to the naval station Yokosuka; another from Yokokawa through Nagano to Sikiyama; a branch from the Sendai line to Utsunomiya and Mito; and a line from Koyama to Kiryu, through Tochigi, Sano, and Tatebayashi. Lastly, numerous lines are projected, of which one from Sendai to Aomori, at the northern extremity of Hondo, is among the chief.

—Sir J. H. Drummond-Hay believes that Morocco might export a large quantity of agricultural produce under a just and prudent government, says the London *Chamber of Commerce Journal*. The soil is very fertile, particularly in the southern provinces, and produces wheat, barley, maize, and other grains, cotton, oil, fruits, cattle, etc. The people are strong and intelligent, and the climate more temperate than in southern Spain. But the inhabitants do not care to waste their labor in producing more than suffices for their maintenance, when any surplus there may be is taken from them by the tax-collectors, and any show of wealth attracts the unpleasant attentions of the government officials. The prohibitions and duties on exports also exercise a prejudicial influence on agriculture, as was proved in the case of maize. Sir John Drummond-Hay succeeded in getting the prohibition on the exportation of that grain removed by the convention of 1856. The first year one vessel only was laden with maize, but in subsequent years one hundred vessels were annually laden with it, and a large quantity of fresh land was brought under cultivation. Yet, in spite of the fanaticism of the Sultan's advisers and the unsettled state of the country, trade does to some extent increase. In the years 1875-85 the value of the imports averaged £1,033,918 annually, of which about three-fourths represented British goods. The imports at Tangier in 1887 amounted to £748,000, about £62,000 more than in the previous year.

—M. V. Turquand presented last year a statistical album to the Paris Geographical Society (*Compte Rendu*, 1889, No. 14). It contained, among others, six maps showing the geographical distributions of the different nationalities in France. There are 80,000 Spaniards living in France, most of them in the Basse-Pyrénées and Pyrénées Orientales. It is curious that there are hardly any in Ariège. The Swiss, who also number 80,000, occupy chiefly the basins of the Loire and of the Upper Rhone and Saône. The Italians are spread over the country from the Maritime Alps to Paris, but are most numerous in the departments of the Alpes-Maritimes, Var, and Bouches-du-Rhône. In the first-mentioned they form one-twentieth per cent of the population. The total number of Belgians in France is nearly 500,000: they dwell in the northern half of the basin of the Seine. Lastly, the Germans are found principally along the

frontier, in the departments of the Vosges and the Meurthe. It is a curious fact that the *quartier* of Paris most densely peopled by foreigners of a certain nationality corresponds to the country district where their compatriots are most numerous; for instance, Germans live chiefly in the north-east of Paris as well as of France.

—The arrangements for holding an exhibition in Jamaica in 1891 appear now to be fairly complete. The exhibition is to be opened on the 27th of January, 1891, and to remain open for a period of not less than three months. It will be managed by a commission, of which the Governor of Jamaica is at the head. The exhibition will comprise specimens of all Jamaica products, — sugar of all qualities, and its allied industry of rum-manufacture; liqueurs, cordials, etc.; coffee; oranges, pine-apples, and fruits of all kinds; pimento, cacao, annatto; woods in all degrees of preparation for use; spices, condiments, etc.; fibres and fibrous materials; cinchona-bark, oils, essential oils, perfumes, etc.; medicinal and economic substances; works of art, pictures, fancy articles, and ornamental work; horses, cattle, and live-stock of all kinds. The botany and geology of the island will also be fully illustrated. The exhibition will also contain examples of foreign products imported into Jamaica. The date given for the receipt of applications for space is the 1st of May next. No charge is to be made for space. A guaranty fund of over \$115,000 has been raised in the island; and this, it is believed, will nearly suffice for the purposes required. A committee to insure the due representation of British industries has been formed in London. Mr. Washington Eves, C.M.G., is the chairman; and, at the request of the committee, the Council of the Society of Arts have nominated one of the members, Mr. C. M. Kennedy, as a member of that committee. For further information, application should be addressed to Mr. Washington Eves, 1 Fen-court, E.C., London, Eng.

—Mr. J. L. Shand sends the following extract from a letter from Mr. James Taylor of Tooleconda Estate, dated June 25, 1888, to the *Journal of the Society of Arts*, London, which gives, on undoubted authority, the dates of the first importation into Ceylon of Assam hybrid tea-seeds, and also of its first successful planting. The first tea was sold in Kandy early in 1872, just about the time of the arrival in the colony as governor of Mr. (now Sir William) Gregory, who at once paid a visit to Tooleconda to see what was going on there. Mr. Taylor writes, "The first Assam hybrid tea-seed arrived here in the early part of 1868. That lot all failed, and our second lot came in the first days of 1869, and our clearing of twenty acres was planted with the plants from this seed in the latter part of the same year. Tea was first planted on Tooleconda in 1866 along the roadsides. This was China tea, the seed of which had been got from the Peradenia gardens, and the plants raised here in small nurseries. Our tea-house was built in 1872; but some tea was made for sale before that, and we had been making it experimentally for years before. Our first experiment was about 1866, when an Assam planter passing through showed me how to do the rolling, and told me about the rest of the performance. This was with leaves off old tea-bushes in the garden of my bungalow."

—The richest petroleum districts of Roumania are situated at the south-east of the Carpathian Mountains, where the oil is obtained at five different spots. In many places, especially at Ploiesti, the ground is charged with gas to such a degree that it is only necessary to bore a hole, and a jet of inflammable gas issues at once. The working of the oil, as described in the *Oil, Paint and Drug Reporter*, is conducted in shafts and galleries, the roofs and walls being closed in with boards. The total yield from Walachei amounts to 9,000 tons, and the product contains 20 to 23 per cent of solid paraffine. It is exported to Vienna to a considerable extent, and yields about 15 per cent of petroleum naphtha on refining. The wells are 50 to 70 metres in depth, some as much as 120 metres. Deeper borings and large refineries have been established recently by foreign enterprise, and the output of oil has increased rapidly of late. The oil districts stretch along

the southern side of the Carpathians to an extent at present unknown, in the provinces of Prahova, Dimbowitza, and Buzen; and the fields appear to be connected with those of Galicia. Two varieties of crude oil are distinguished, — (1) Pacura and (2) Titeiu. The latter contains the material for refining purposes, and yields 78 per cent of burning naphtha. It cannot be imported into Austria-Hungary on account of the high duty, but is freely exported to Germany, where there is no duty on the raw product; and after refining, the lighting-oil can be sold at 18.4 marks per hectolitre, while American oil commands 27 marks (this refers to 1884). The petroleum from Momesti and Casin flashes at 17° to 19° C. (10° below Russian petroleum), and begins to distil at 80°, yielding a large proportion of distillate up to 150°. Roumanian oils from eight districts are described by Istrati (*Jahrbuch des Organischen Laboratoriums zu Bucharest*, 1888-89), and contain from 42 to 65 per cent of photogen, 5 to 20 per cent of petroleum naphtha, and 11 to 25 per cent of solid paraffine. The residues yield nearly 50 per cent of photogen when carefully rectified. A sample from Pacureti (Prahova) yielded 50 per cent of lighting-oil of specific gravity 0.800, and distilling between 125° and 280°. Austrian and American crude petroleum both yield about 50 to 55 per cent of good burning oil, while the Russian product does not give more than 20 per cent.

—Of 122 varieties and seedlings of the potato tested the past season at the Agricultural Experiment Station, Madison, Wis., the following ten were most productive, yielding in the order named: seedling from C. E. Angell, Rose Beauty, Monarch, Duplex, Late Beauty of Hebron, Mullaly, Alexander's Prolific, Seneca Red Jacket, White Beauty of Hebron, and Wisconsin Beauty. Placed in the order of their table quality, these varieties would rank as follows: Alexander's Prolific, White Beauty of Hebron, Late Beauty of Hebron, Duplex, Monarch, Wisconsin Beauty, Seneca Red Jacket, Rose Beauty, Mullaly, seedling from C. E. Angell. The tests made at the station, taken as a whole, favor heavy rather than light seeding. Cutting off the "seed-end" was found detrimental to the yield. No advantage followed sprinkling the cuttings with plaster before planting.

—Dr. Thomas Taylor, microscopist of the United States Department of Agriculture, proposes the following new method of detecting oleo in butter: Dissolve in 20 cubic centimetres of petroleum benzine 140 grains of a mixture of oleo and butter. Heat slightly to secure a perfect solution of the fats. Caseine and animal tissues may be readily removed by passing the liquid while warm through fine muslin. Fill a test-tube with the solution, and place in ice-water. In about twenty minutes the oleo-fat will separate from the butter-fat, and fall to the bottom of the tube, being insoluble in cold benzine, while the butter-fat will remain in solution in the benzine. Separate the oleo-fat from the liquid butter-fat by filtration. The fat recovered may be solidified by mechanical pressure, placing it between several layers of bibulous paper to absorb the remaining benzine, after which the sheet of solid oleo may be removed from the paper with a palette-knife. The butter may be recovered by evaporating the benzine by means of a sand-bath.

—Dr. Thomas Taylor, microscopist of the United States Department of Agriculture, proposes the following new method of detecting cottonseed-oil in lard: Dissolve in 20 cubic centimetres of petroleum benzine 140 grains of a mixture of lard and cottonseed-oil. Heat slightly to secure a perfect solution of the lard. Animal tissues should be carefully removed by passing the liquid while warm through fine muslin. Fill a test-tube with the solution, and place in ice-water. In about twenty minutes the lard falls to the bottom of the tube by reason of its insolubility in cold benzine, while the cottonseed-oil remains in solution in the benzine. Separate the lard from the cottonseed-oil by filtration through fine bibulous paper, and subject the recovered fat to mechanical pressure between several folds of the filtering-paper, by which means the remaining benzine is absorbed. The solidified fat may be removed from the paper with a palette-knife. The cottonseed-oil is separated from the benzine by means of a sand-bath, which evaporates the benzine.